

“STRUCTURE OF ANGULAR PNEUMATIC GRIPPER”

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CLAIMS

5 1. Structure of an angular pneumatic gripper comprising, an angular pneumatic piston moving alternatively in a chamber or sleeve in said body, two grips supported and guided in the body, coupled to the piston through a drive, and two jaws fixed to the grips to block and release the item to be handled, and where the grips can move at angles in opposite directions

10 between an open and closed position by means of said drive and in response to the alternating movements of the piston, characterised by the fact that said body (11) is made up of two symmetric and identical elements or shells (15) realised and finished individually by forming and then associated and fixed face to face to form together the housing chamber of said piston (12) and the

15 means to receive and guide said drive (13) in a transverse manner and said grips (14) to turn, said elements or shells being made using die-casting, sintering or forging processes using compatible materials for these forming techniques.

2. Structure of an angular pneumatic gripper according to claim 1,

20 wherein each element or shell (15) of said body (11) has a support base (16) from which an intermediate section (17) rises overlooked by two shoulders (18) connected by a top crosspiece 18', wherein said intermediate section (17) of each shell (15) centrally forms a cylindrical cavity (21) open towards the homologous cavity of the facing shell, said cavity being closed by the opposite

25 part of the end wall (22) in which a hole (22') is provided, the top walls (18) of

each shell (15) form a chamber (24) which is open on one side towards the facing shell and on the other has an opening (24'), wherein in said chamber (24) the sliding surface (25) and, on the opposite sides of said sliding surface, two housings (26) are provided, said sliding surface (25) being positioned 5 parallel above the cylindrical cavity (21) and having at one end of the open side of said cavity, a half-slot (25'), wherein, in the intermediate section (17), on the sides opposite to said cavity, parallel to its axis, holes (23) are provided to receive screws for fixing the two facing shells, so that their aligned cavities form the chamber for said piston and the chamber between said shoulders 10 houses the drive and the grips with relative support and control elements, the drive resting on the sliding surface (25) and connected to the piston by means of a through pin in said aligned half-slots (25') and the grips extending through the opening in the respective space between said shoulders.

3. Structure of an angular pneumatic chuck according to claims 1 and 15 2, wherein each grip has a lower cylindrical section (30) crossed by a polygonal hole (30') and coupled to two geared wheels (31), one per side, each one having, on one side, a polygonal hub (32) to house and fit into the transverse polygonal hole (30') of the grip and, from the opposite side, a cylindrical hub (32') to house and turn in a corresponding housing (27') 20 shaped in a support element (27), the geared wheels being attached to their respective grip by a bolt (33) passing through the hubs (32,32') of the geared wheels and forming the rotation axis of the grip and said support being equipped to support the collateral wheels of the two grips of the gripper.

4. Structure of an angular pneumatic gripper according to claim 3, 25 wherein the drive (13) has a pair of indexing racks meshed with the opposite

geared wheels of one of the grips, themselves meshed with the geared wheels of the other grip.

5. Structure of an angular pneumatic chuck according to claims 3 and 4, wherein on the side of each geared wheel (31) on the side of the polygonal hub (32), which is coupled to the grip (14) and neck (31') is formed to which a protective cap (34) is associated, said cap at the top centre and at the bottom ends having some overhangs (35, 36) facing towards the grips, the protective cap engaging at the same time the neck (31') of the collateral geared wheels of the two grips and the relative overhangs (35, 36), matching the homologous 10 overhangs of the cap associated with the geared wheels on the opposite part of the grips and acting as scrapers for the external surface of the cylindrical portion of said grips.

6. Structure of an angular pneumatic chuck according to the previous claims, in which on the sides of the support base of each shell (15) of 15 the body two lugs with half-holes for anchoring screws are formed and on the sides of the intermediate section of each shell longitudinal grooves for applying accessories are provided.